

2.Act




Primary care providers can implement policies and interventions to promote appropriate antibiotic prescribing.

- Use evidence-based diagnostic criteria and treatment recommendations
 - Adult Treatment Recommendations (<http://tinyurl.com/abxtreatadult>)
 - Pediatric Treatment Recommendations (<http://tinyurl.com/abxtreatped>)
- Use delayed prescribing or watchful waiting, when appropriate.
 - View examples of prescription pads for delayed prescribing, watchful waiting, and symptomatic relief on page [11](#)
- Provide communication skills training for prescribers
 - View a list of communication skills trainings on page [12](#)
- Require explicit written justification in the medical record for non-recommended antibiotic prescribing

Sample Delayed Prescribing, Watchful Waiting, and Symptomatic Relief Prescription Pads

What Is Delayed Prescribing?



WAIT. DO NOT FILL YOUR PRESCRIPTION JUST YET.

Your healthcare professional believes your illness may resolve on its own. First, follow your healthcare professional's recommendations to help you feel better without antibiotics. Continue to monitor your own symptoms over the next few days.

- Rest.
- Drink extra water and fluids.
- Use a cool mist vaporizer or saline nasal spray to relieve congestion.
- For sore throats in adults and older children, try ice chips, sore throat spray, or lozenges.
- Use honey to relieve cough. Do not give honey to an infant younger than 1.

If you **do not feel better** in ____ days/hours or **feel worse**, go ahead and fill your prescription.

If you **feel better**, you do not need the antibiotic, and do not have to risk the side effects.

Waiting to see if you really need an antibiotic can help you take antibiotics only when needed. When antibiotics aren't needed, they won't help you, and the side effects could still hurt you. Common side effects of antibiotics can include rash, dizziness, nausea, diarrhea, and yeast infections.

Antibiotics save lives, and when a patient needs antibiotics, the benefits outweigh the risks of side effects. You can protect yourself and others by learning when antibiotics are and are not needed.

To learn more about antibiotic prescribing and use, visit www.cdc.gov/antibiotic-use.

What Is Watchful Waiting?



WAIT. DO NOT FILL YOUR PRESCRIPTION JUST YET.

Your healthcare professional believes your illness may go away on its own. You should watch and wait for ____ days/hours before deciding whether to take an antibiotic.

In the meantime, follow your healthcare professional's recommendations to help you feel better and continue to monitor your own symptoms over the next few days.

- Rest.
- Drink extra water and fluids.
- Use a cool mist vaporizer or saline nasal spray to relieve congestion.
- For sore throats in adults and older children, try ice chips, sore throat spray, or lozenges.
- Use honey to relieve cough. Do not give honey to an infant younger than 1.


If you **feel better**, no further action is necessary. You don't need antibiotics.

If you **do not feel better**, experience **new symptoms**, or have **other concerns**, call your healthcare professional _____. Discuss whether you need a recheck or antibiotics.

It may not be convenient to visit your healthcare professional multiple times, but it is critical to take antibiotics only when needed. When antibiotics aren't needed, they won't help you and the side effects could still hurt you. Common side effects of antibiotics can include rash, dizziness, nausea, diarrhea, and yeast infections.

Antibiotics save lives, and when a patient needs antibiotics, the benefits outweigh the risks of side effects. You can protect yourself and others by learning when antibiotics

Symptom Relief for Viral Illnesses



1. DIAGNOSIS

- Cold or cough
- Middle ear fluid (Otitis Media with Effusion, OME)
- Flu
- Viral sore throat
- Bronchitis
- Other: _____

You have been diagnosed with an illness caused by a virus. Antibiotics do not work on viruses. When antibiotics aren't needed, they won't help you, and the side effects could still hurt you. The treatments prescribed below will help you feel better while your body fights off the virus.

2. GENERAL INSTRUCTIONS

- Drink extra water and fluids.
- Use a cool mist vaporizer or saline nasal spray to relieve congestion.
- For sore throats in older children and adults, use ice chips, sore throat spray, or lozenges.
- Use honey to relieve cough. Do not give honey to an infant younger than 1.

3. SPECIFIC MEDICINES

- Fever or aches: _____
- Ear pain: _____
- Sore throat and congestion: _____


Use medicines according to the package instructions or as directed by your healthcare professional. Stop the medication when the symptoms get better.

4. FOLLOW UP

- If not improved in ____ days/hours, if new symptoms occur, or if you have other concerns, please call or return to the office for a recheck.
- Phone: _____
- Other: _____

Signed: _____

To learn more about antibiotic prescribing and use, visit www.cdc.gov/antibiotic-use.



Links to download these free resources are found on page [9](#).

Provider Communication Skills Training

To Prescribe or Not to Prescribe? Antibiotics and Outpatient Infections

<http://tinyurl.com/abxcomtrain1>

- **Description:** Sponsored by Stanford University, this free continuing medical education (CME) module provides a practical approach for treating outpatient infections and navigating patient interactions through a “Choose your own adventure” experience.
- **Length:** 1.75 hours
- **CME credits offered:** Yes

CDC Training on Antibiotic Stewardship

<http://tinyurl.com/abxcomtrain2>

- **Description:** Developed by the Centers for Disease Control and Prevention (CDC), this free module encourages open discussion among physicians and patients and informs health care professionals about appropriate antibiotic prescribing.
- **Length:** 8 hours
- **CME credits offered:** Yes

Primary Care Office Visits: Antibiotics

<http://tinyurl.com/abxcomtrain3>

- **Description:** Sponsored by the Robert Wood Johnson Foundation, this role play simulation was created to assist healthcare providers and their patients in improving their communication skills.
- **Length:** 30 minutes
- **CME credits offered:** No

Dialogue around Respiratory Illness Treatment: Optimizing Communication with Parents

<http://tinyurl.com/dart-mod>

- **Description:** This learning module was created by The Mangione Smith Lab based on their research evaluating how doctor-parent communication influences antibiotic prescribing for acute respiratory illness in pediatric patients.
- **Length:** 20 minutes
- **CME credits offered:** No

Choosing Wisely Communication Modules

<http://tinyurl.com/choose-wise1>

- **Description:** Developed by Drexel University College of Medicine, these interactive modules are designed to enhance physician and patient communication and address patient attitudes and beliefs that more care is better care. The modules are based on medical society recommendations from the *Choosing Wisely* campaign.
- **Length:** 1 hour
- **CME Credits offered:** No

CHAPTER 2: SUPPLEMENTAL MATERIAL

These materials were compiled by CDPH to supplement the Act Section of the IDPH Antibiotic Stewardship Toolkit.

Included:

- 1. CDC Adult Outpatient Treatment Recommendations**
Summary tables of the most recent CDC recommendations for appropriate prescribing for adults seeking care in an outpatient setting.
- 2. CDC Pediatric Outpatient Treatment Recommendations**
Summary tables of the most recent CDC recommendations for appropriate prescribing for pediatric patients in an outpatient setting.
- 3. Best Practices in the Management of Patients with Acute Bronchitis/Cough: Adult**
Flowchart and table showing evidence-based management of adult acute respiratory tract infections.
- 4. Best Practices in the Management of Patients with Pharyngitis: Pediatric**
Flowchart and table showing evidence-based management of pediatric pharyngitis.
- 5. Tips for Talking to Patients about Viral Respiratory Infections**
Tips on how to improve patient satisfaction when antibiotics are not indicated.

Additional Links:

- 6. Association Between Outpatient Antibiotic Prescribing Practices and Community-Associated *Clostridium difficile* Infection (2015)**
<https://tinyurl.com/antibioticscdi>
Study showing that modest reduction of 10% in outpatient antibiotic prescribing can have a disproportionate impact on reducing community-associated CDI rates.

CDC Adult Outpatient Treatment Recommendations

Acute rhinosinusitis ^{1,2}	
Epidemiology	<p>About 1 out of 8 adults (12%) in 2012 reported receiving a diagnosis of rhinosinusitis in the previous 12 months, resulting in more than 30 million diagnoses. Ninety–98% of rhinosinusitis cases are viral, and antibiotics are not guaranteed to help even if the causative agent is bacterial.</p>
Diagnosis	<p>Diagnose acute bacterial rhinosinusitis based on symptoms that are:</p> <ul style="list-style-type: none"> • <i>Severe (>3-4 days)</i>, such as a fever $\geq 39^{\circ}\text{C}$ (102°F) and purulent nasal discharge or facial pain; • <i>Persistent (>10 days) without improvement</i>, such as nasal discharge or daytime cough; or • <i>Worsening (3-4 days)</i> such as worsening or new onset fever, daytime cough, or nasal discharge after initial improvement of a viral upper respiratory infections (URI) lasting 5-6 days. <p>Sinus radiographs are not routinely recommended.</p>
Management	<p>If a bacterial infection is established:</p> <ul style="list-style-type: none"> • Watchful waiting is encouraged for uncomplicated cases for which reliable follow-up is available. • Amoxicillin or amoxicillin/clavulanate is the recommended first-line therapy. • Macrolides such as azithromycin are not recommended due to high levels of <i>Streptococcus pneumoniae</i> antibiotic resistance (~40%). • For penicillin-allergic patients, doxycycline is preferred (or without other alternatives, a respiratory fluoroquinolone - levofloxacin or moxifloxacin) are recommended as second and third line agents.

CDC Adult Outpatient Treatment Recommendations

Acute uncomplicated bronchitis ³⁻⁵	
Epidemiology	Cough is the most common symptom for which adult patients visit their primary care provider, and acute bronchitis is the most common diagnosis in these patients.
Diagnosis	<ul style="list-style-type: none"> • Evaluation should focus on ruling out pneumonia, which is rare among otherwise healthy adults in the absence of abnormal vital signs (heart rate \geq 100 beats/min, respiratory rate \geq 24 breaths/min, or oral temperature \geq 38 °C) and abnormal lung examination findings (focal consolidation, egophony, fremitus). • Colored sputum does not indicate bacterial infection. • For most cases, chest radiography is not indicated.
Management	<p>Routine treatment of uncomplicated acute bronchitis with antibiotics is not recommended, regardless of cough duration.</p> <p>Options for symptomatic therapy include:</p> <ul style="list-style-type: none"> • Cough suppressants (codeine, dextromethorphan); • First-generation antihistamines (diphenhydramine); • Decongestants (phenylephrine). <p>Evidence supporting specific symptomatic therapies is limited.</p>
Common cold or non-specific upper respiratory tract infection (URI) ^{6,7}	
Epidemiology	<ul style="list-style-type: none"> • The common cold is the third most frequent diagnosis in office visits, and most adults experience two to four colds annually. • At least 200 viruses can cause the common cold.
Diagnosis	<ul style="list-style-type: none"> • Prominent cold symptoms include fever, cough, rhinorrhea, nasal congestion, postnasal drip, sore throat, headache, and myalgias.
Management	<ul style="list-style-type: none"> • Decongestants (pseudoephedrine and phenylephrine) combined with a first-generation antihistamine may provide short-term symptom relief of nasal symptoms and cough. • Non-steroidal anti-inflammatory drugs can be given to relieve symptoms. • Evidence is lacking to support antihistamines (as monotherapy), opioids, intranasal corticosteroids, and nasal saline irrigation as effective treatments for cold symptom relief. • Do not prescribe antibiotics. <p>Providers and patients must weigh the benefits and harms of symptomatic therapy.</p>

CDC Adult Outpatient Treatment Recommendations

Acute uncomplicated bronchitis ^{8,9}	
Epidemiology	<ul style="list-style-type: none"> Group A beta-hemolytic streptococcal (GAS) infection is the only common indication for antibiotic therapy for sore throat cases. Only 5–10% of adult sore throat cases are caused by GAS.
Diagnosis	<ul style="list-style-type: none"> Clinical features alone do not distinguish between GAS and viral pharyngitis; a rapid antigen detection test (RADT) is necessary to establish a GAS pharyngitis diagnosis Those who meet two or more Centor criteria (e.g., fever, tonsillar exudates, tender cervical lymphadenopathy, absence of cough) should receive a RADT. Throat cultures are not routinely recommended for adults.
Management	<ul style="list-style-type: none"> Antibiotic treatment is NOT recommended for patients with negative RADT results. Amoxicillin and penicillin V remain first-line therapy due to their reliable antibiotic activity against GAS. For penicillin-allergic patients, cephalexin or cefadroxil preferred for non-type I allergic reactions (clindamycin or macrolides are alternatives). GAS antibiotic resistance to azithromycin and clindamycin are increasingly common. Recommended treatment course for all oral beta lactams is 10 days.
Acute uncomplicated cystitis ^{10,11}	
Epidemiology	<ul style="list-style-type: none"> Cystitis is among the most common infections in women and is usually caused by <i>E. coli</i>.
Diagnosis	<ul style="list-style-type: none"> Classic symptoms include dysuria, frequent voiding of small volumes, and urinary urgency. Hematuria and suprapubic discomfort are less common. Foul smelling urine and change in urine color are not indicators of a urinary tract infection, and more likely indicate dehydration. Nitrites and leukocyte esterase are the most accurate indicators of acute uncomplicated cystitis.
Management	<p>For acute uncomplicated cystitis in healthy adult non-pregnant, premenopausal women:</p> <ul style="list-style-type: none"> Nitrofurantoin, trimethoprim/sulfamethoxazole (TMP-SMX, where local resistance is <20%), and fosfomicin are appropriate first-line agents. Fluoroquinolones (e.g. ciprofloxacin) should be reserved for situations in which other agents are not appropriate.

CDC Adult Outpatient Treatment Recommendations

References:

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2. Chow AW, Benninger MS, Itzhak B, et al. IDSA clinical practice guideline for acute bacterial rhinosinusitis in children and adultsExternal. *Clin Infect Dis*. 2012;54(8):e72-e112.
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4. Irwin RS, Baumann MH, Bolser DC, et al. Diagnosis and management of cough: ACCP evidence-based clinical practice guidelinesExternal. *Chest*. 2006;129(1 Suppl).
5. Gonzales R, Bartlett JG, Besser RE, et al. Principles of appropriate antibiotic use for treatment of uncomplicated acute bronchitis: BackgroundExternal. *Ann Intern Med*. 2001;134(6):521-9.
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8. Shulman ST, Bisno AL, Clegg HW, et al. Clinical practice guideline for the diagnosis and management of group A streptococcal pharyngitis: 2012 update by the Infectious Diseases Society of AmericaExternal. *Clin Infect Dis*. 2012;55(10):e86-102.
9. Cooper RJ, Hoffman JR, Bartlett JG, et al. Principles of appropriate antibiotic use for acute pharyngitis in adults: BackgroundExternal. *Ann Intern Med*. 2001;134(6):509-17.
10. Gupta K, Hooton TM, Naber KG, et al. International clinical practice guidelines for the treatment of acute uncomplicated cystitis and pyelonephritis in women: A 2010 update by the Infectious Diseases Society of America and the European Society for Microbiology and Infectious DiseasesExternal. *Clin Infect Dis*. 2011;52(5):e103-20.
11. Colgan R, Williams M. Diagnosis and treatment of acute uncomplicated cystitisExternal. *Am Fam Physician*. 2011;84(7):771-6.

CDC Pediatric Outpatient Treatment Recommendations

Acute sinusitis ^{1, 2}	
Epidemiology	Sinusitis may be caused by viruses or bacteria, and antibiotics are not guaranteed to help even if the causative agent is bacterial.
Diagnosis	<p>Halitosis, fatigue, headache, decreased appetite, but most physical exam findings are non-specific and do not distinguish bacterial from viral causes. A bacterial diagnosis may be established based on the presence of one of the following criteria:</p> <ul style="list-style-type: none"> • Persistent symptoms without improvement: nasal discharge or daytime cough >10 days. • Worsening symptoms: worsening or new onset fever, daytime cough, or nasal discharge after initial improvement of a viral URI. • Severe symptoms: fever $\geq 39^{\circ}\text{C}$, purulent nasal discharge for at least 3 consecutive days. <p>Imaging tests are no longer recommended for uncomplicated cases.</p>
Management	<p>If a bacterial infection is established:</p> <ul style="list-style-type: none"> • Watchful waiting for up to 3 days may be offered for children with acute bacterial sinusitis with persistent symptoms. Antibiotic therapy should be prescribed for children with acute bacterial sinusitis with severe or worsening disease. • Amoxicillin or amoxicillin/clavulanate remain first-line therapy. • Recommendations for treatment of children with a history of type I hypersensitivity to penicillin vary.^{1, 2} • In children who are vomiting or who cannot tolerate oral medication, a single dose of ceftriaxone can be used and then can be switched to oral antibiotics if improving.¹ • For further recommendations on alternative antibiotic regimens, consult the American Academy of Pediatrics¹ or the Infectious Diseases Society of America² guidelines.

CDC Pediatric Outpatient Treatment Recommendations

Acute otitis media (AOM) ³⁻⁵	
Epidemiology	<ul style="list-style-type: none"> • AOM is the most common childhood infection for which antibiotics are prescribed. • 4-10% of children with AOM treated with antibiotics experience adverse effects.⁴
Diagnosis	<p>Definitive diagnosis requires either</p> <ul style="list-style-type: none"> • Moderate or severe bulging of tympanic membrane (TM) or new onset otorrhea not due to otitis externa. • Mild bulging of the TM AND recent (<48h) onset of otalgia (holding, tugging, rubbing of the ear in a nonverbal child) or intense erythema of the TM. <p>AOM should not be diagnosed in children without middle ear effusion (based on pneumatic otoscopy and/or tympanometry).</p>
Management	<ul style="list-style-type: none"> • Mild cases with unilateral symptoms in children 6-23 months of age or unilateral or bilateral symptoms in children >2 years may be appropriate for watchful waiting based on shared decision-making. • Amoxicillin remains first line therapy for children who have not received amoxicillin within the past 30 days. • Amoxicillin/clavulanate is recommended if amoxicillin has been taken within the past 30 days, if concurrent purulent conjunctivitis is present, or if the child has a history of recurrent AOM unresponsive to amoxicillin. • For children with a non-type I hypersensitivity to penicillin: cefdinir, cefuroxime, cefpodoxime, or ceftriaxone may be appropriate choices. • Prophylactic antibiotics are not recommended to reduce the frequency of recurrent AOM. • For further recommendations on alternative antibiotic regimens, consult the American Academy of Pediatrics guidelines.³

CDC Pediatric Outpatient Treatment Recommendations

Pharyngitis ^{4, 6}	
Epidemiology	<ul style="list-style-type: none"> Recent guidelines aim to minimize unnecessary antibiotic exposure by emphasizing appropriate use of rapid antigen detection test (RADT) testing and subsequent treatment . During the winter and spring, up to 20% of asymptomatic children can be colonized with group A beta-hemolytic streptococci (GAS), leading to more false positives from RADT-testing and increases in unnecessary antibiotic exposure. Streptococcal pharyngitis is primarily a disease of children 5-15 years old and is rare in children < 3 years.
Diagnosis	<ul style="list-style-type: none"> Clinical features alone do not distinguish between GAS and viral pharyngitis. Children with sore throat plus 2 or more of the following features should undergo a RADT test: <ul style="list-style-type: none"> absence of cough presence of tonsillar exudates or swelling history of fever presence of swollen and tender anterior cervical lymph nodes age < 15 years Testing should generally not be performed in children < 3 years in whom GAS rarely causes pharyngitis and rheumatic fever is uncommon. In children and adolescents, negative RADT tests should be backed up by a throat culture; positive RADTs do not require a back-up culture.
Management	<ul style="list-style-type: none"> Amoxicillin and penicillin V remain first-line therapy. For children with a non-type I hypersensitivity to penicillin: cephalexin, cefadroxil, clindamycin, clarithromycin, or azithromycin are recommended. For children with an immediate type I hypersensitivity to penicillin: clindamycin, clarithromycin, or azithromycin are recommended. Recommended treatment course for all oral beta lactams is 10 days.

CDC Pediatric Outpatient Treatment Recommendations

Common cold or non-specific upper respiratory tract infection (URI) ^{4,7}	
Epidemiology	<ul style="list-style-type: none"> The course of most uncomplicated viral URIs is 5 – 7 days. Colds usually last around 10 days. At least 200 viruses can cause the common cold.
Diagnosis	<ul style="list-style-type: none"> Viral URIs are often characterized by nasal discharge and congestion or cough. Usually nasal discharge begins as clear and changes throughout the course of the illness. Fever, if present, occurs early in the illness.
Management	<ul style="list-style-type: none"> Management of the common cold, nonspecific URI, and acute cough illness should focus on symptomatic relief. Antibiotics should not be prescribed for these conditions. There is potential for harm and no proven benefit from over-the-counter cough and cold medications in children < 6 years. These substances are among the top 20 substances leading to death in children <5 years. Low-dose inhaled corticosteroids and oral prednisolone do not improve outcomes in children without asthma.
Bronchiolitis ⁸	
Epidemiology	<ul style="list-style-type: none"> Bronchiolitis is the most common lower respiratory tract infection in infants. It is most often caused by respiratory syncytial virus but can be caused by many other respiratory viruses.
Diagnosis	<ul style="list-style-type: none"> Bronchiolitis occurs in children <24 months and is characterized by rhinorrhea, cough, wheezing, tachypnea, and/ or increased respiratory effort. Routine laboratory tests and radiologic studies are not recommended, but a chest x-ray may be warranted in atypical disease (absence of viral symptoms, severe distress, frequent recurrences, lack of improvement).
Management	<ul style="list-style-type: none"> Usually patients worsen between 3-5 days, followed by improvement. Antibiotics are not helpful and should not be used. Nasal suctioning is mainstay of therapy. Neither albuterol nor nebulized racemic epinephrine should be administered to infants and children with bronchiolitis who are not hospitalized. There is no evidence to support routine suctioning of the lower pharynx or larynx (deep suctioning). There is no role for corticosteroids, ribavirin, or chest physiotherapy in the management of bronchiolitis.

CDC Pediatric Outpatient Treatment Recommendations

Urinary tract infections (UTIs) ^{8,9}	
Epidemiology	<ul style="list-style-type: none"> • UTIs are common in children, affecting 8% of girls and 2% of boys by age 7. • The most common causative pathogen is <i>E. coli</i>, accounting for approximately 85% of cases.
Diagnosis	<ul style="list-style-type: none"> • In infants, fever and or strong-smelling urine are common. • In school-aged children, dysuria, frequency, or urgency are common. • A definitive diagnosis requires both a urinalysis suggestive of infection and at least 50,000 CFUs/mL of a single uropathogen from urine obtained through catheterization or suprapubic aspiration (NOT urine collected in a bag) for children 2–24 months. • Urinalysis is suggestive of infection with the presence of pyuria (leukocyte esterase or ≥ 5 WBCs per high powered field), bacteriuria, or nitrites. • Nitrites are not a sensitive measure for UTI in children and cannot be used to rule out UTIs. • The decision to assess for UTI by urine testing for all children 2–24 months with unexplained fever is no longer recommended and should be based on the child’s likelihood of UTI. Please see the American Academy of Pediatrics guidelines for further details of establishing the likelihood of UTI.⁹
Management	<ul style="list-style-type: none"> • Initial antibiotic treatment should be based on local antimicrobial susceptibility patterns. Suggested agents include TMP/SMX, amoxicillin/clavulanate, cefixime, cefpodoxime, cefprozil, or cephalexin in children 2-24 months. • Duration of therapy should be 7-14 days in children 2-24 months. • Antibiotic treatment of asymptomatic bacteriuria in children is not recommended. • Febrile infants with UTIs should undergo renal and bladder ultrasonography during or following their first UTI. Abnormal imaging results require further testing. • The decision to assess for UTI by urine testing for all children 2–24 months with unexplained fever is no longer recommended and should be based on the child’s likelihood of UTI. Please see the American Academy of Pediatrics guidelines for further details of establishing the likelihood of UTI.⁹

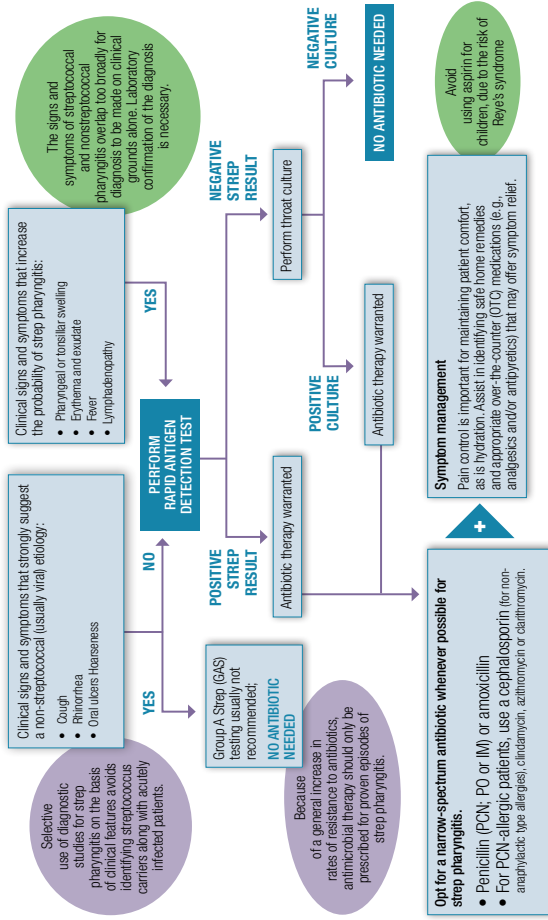
CDC Pediatric Outpatient Treatment Recommendations

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Clinician efforts to prescribe appropriately and to educate young patients and their parents/caregivers about antibiotics continue to play a vital role in decreasing resistance levels. Parents/caregivers want their children to feel better soon but often do not understand that sore throat is usually caused by a virus, will not resolve with antibiotics, and that these medications have the potential to do more harm than good.

Confirm a Streptococcal Cause of Pharyngitis BEFORE Prescribing Antibiotics.



Educate, Advise and Assist Patients and Parents/Caregivers.

Viral cause: If rapid strep testing is negative, educate patients and parents/caregivers that the cause (pending possible cultures) is not strep but one of many different viruses, and antibiotics are not necessary. Even with typical symptoms, fewer than 30% of children have strep pharyngitis. Inform parents/caregivers that prior, repeated, or recent strep infection or exposure to someone with strep may increase the chance, but does not adequately confirm a current strep infection.

Value of testing/potential harm of antibiotics: Advise patients and parents/caregivers that rapid tests are highly reliable and allow providers to avoid using unnecessary antibiotics and the associated possible harm (medication side effects and increasing personal and societal antimicrobial resistance).

Signs of worsening: Educate patients and parents/caregivers that, occasionally, whatever the cause of a sore throat and whether antibiotics are prescribed or not, symptoms can worsen. If this is the case, re-evaluation is necessary. If symptoms do not begin to subside in 72 hours, schedule a re-visit for further evaluation.

Illness prevention: Review illness prevention, including good hand and respiratory hygiene. Offer influenza vaccination to children 6 months to 18 years of age. Encourage parents/caregivers and household contacts of children to get vaccinated.

Supporting Organizations

Allameda Alliance for Health
Anthem Blue Cross
CalOptima
Care4 Health Plan
Health Net of California

American Academy of Pediatrics,
California District
California Academy of Family Physicians

California Pharmacists Association
Urgent Care Association of America
Urgent Care College of Physicians

Endorsing Organizations

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CMA Foundation, 1201 J Street, #200, Sacramento, CA 95814

Acute Infection Guideline Summary

2018

Reference Articles

Otitis Media:

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Guidelines Reviewed:

- American Academy of Allergy, Asthma & Immunology (AAAAI)
- American Academy of Family Physicians (AAFP)
- American Academy of Otolaryngology – Head and Neck Surgery
- American College of Physicians (ACP)
- Centers for Disease Control and Prevention (CDC)
- Infectious Diseases Society of America (IDSA)
- Institute for Clinical Systems Improvement (ICSI)
- Infectious Diseases Society of America / American Thoracic Society (IDSAATS)



Alliance Working for Antibiotic Resistance Education

Illness	Indications for Antibiotic Treatment in Children	Pathogen	Antibiotic Therapy	Antibiotic
Otitis Media Guidelines Reviewed: AAP, AAP, CDC	<p>When NOT to Treat with an Antibiotic: Otitis Media with Effusion. Do not prescribe prophylactic antibiotics to reduce the frequency of episodes of Acute Otitis Media (AOM) in children with recurrent AOM.</p> <p>When to Treat with an Antibiotic: Acute Otitis Media (AOM)</p> <ol style="list-style-type: none"> Moderate to severe bulging of the tympanic membrane (TM) or new onset of otorrhea not due to acute otitis externa. May diagnose acute otitis media in presence of mild bulging of the TM and recent (less than 48 hours) onset of ear pain, itching, tugging, and rubbing of the ear in a nonverbal child, or intense erythema of the TM. Signs or symptoms of middle ear inflammation as indicated by either: <ol style="list-style-type: none"> Distinct erythema of the TM or Distinct otalgia (discomfort clearly referable to the ears) that interferes with or precludes normal activity or sleep) <p>Note: Clinicians should not diagnose AOM in children who do not have middle ear effusion.</p>	<p><i>Streptococcus pneumoniae</i> <i>Non-typeable Haemophilus influenzae</i> <i>Moraxella catarrhalis</i></p>	<p>Severe AOM: Prescribe the antibiotic therapy for AOM in children >6 months of age with severe signs or symptoms (moderate to severe otalgia or otitis for at least 48 hours or temperature >39°C [102.2°F]).</p> <p>Non-severe bilateral AOM in young children: Prescribe antibiotic therapy for bilateral AOM in children 6-23 months of age without severe signs or symptoms (mild otalgia for less than 48 hours and temperature >39°C [102.2°F]).</p> <p>>Severe unilateral AOM in young children, 6 months to 23 months of age or non-severe AOM (bilateral or unilateral) in older children (24 months or older): Prescribe antibiotic therapy or other observation and close follow-up based on joint decision-making with the parent(s) (>39°C [102.2°F]). When observation is used, ensure follow-up and begin antibiotic therapy if the child worsens or fails to improve within 48-72 hours of onset of symptoms.</p> <p>Analgesics and Antipyretics: Always assess pain. If pain is present, add treatment to reduce pain. Oral acetaminophen (may use acetaminophen with codeine for moderate-severe pain), topical benzocaine (<3 years of age).</p> <p>Antibiotic Duration:</p> <ul style="list-style-type: none"> Younger than 2 years or severe symptoms: 10 days 2-5 years old with mild to moderate symptoms: 7 days >6 years of age with mild to moderate symptoms: 5-7 days <p>Antibiotics are generally not indicated.</p> <p>Treatment reserved for <i>Bordetella pertussis</i>, <i>Chlamydia pneumoniae</i>, <i>Mycoplasma pneumoniae</i>.</p> <p>Length of Therapy: 7-14 days (5 days for azithromycin)</p>	<p>Antibiotic Choice:</p> <ul style="list-style-type: none"> If child has not received amoxicillin in the past 30 days or the child does not have concurrent penicillin conjunctivitis: high dose amoxicillin (80-90 mg/kg/day) If the child has received amoxicillin in the last 30 days or has concurrent penicillin conjunctivitis, or has a history of recurrent AOM unresponsive to amoxicillin: high dose amoxicillin-clavulanate (80-90 mg/kg/day of amoxicillin component) Alternatives: For non-antypylactic β-lactam allergy: cefdinir, cefepodoxime, cefuroxime, ceftriaxone (50 mg/kg IM or IV per day for 1 or 3 days) For severe β-lactam allergy: clindamycin <p>Unable to tolerate oral antibiotic: ceftriaxone (50 mg/kg IM or IV per day for 1 or 3 days)</p> <p>Failure of Initial Therapy:</p> <p>Reassess the patient if the caregiver reports that the child's symptoms have worsened or failed to respond to the initial antibiotic treatment within 48 to 72 hours and determine whether a change in therapy is needed.</p> <p>If initial therapy has failed: high dose amoxicillin/clavulanate (80-90 mg/kg/day of amoxicillin component), or ceftriaxone 50 mg/kg IM or IV per day for 3 days), or clindamycin with or without cefuroxime (cedinir, cefixime or cefuroxime)</p>
Non-specific Cough Illness, Bronchitis/ Pertussis Guidelines Reviewed: AAP, AAP, CDC, ISI	<p>When NOT to Treat with an Antibiotic: Non-specific cough illness.</p> <p>When to Treat with an Antibiotic: Presents with prolonged, unimproving cough (1-4 days). Clinically differentiable from pneumonia. If pertussis is suspected, appropriate secondary diagnosis encouraged (allergic, URI). Pertussis should be reported to public health authorities. <i>Chlamydia pneumoniae</i> and <i>Mycoplasma pneumoniae</i> may occur in older children (unusual < 5 years of age).</p>	<p>> 90% of cases caused by routine respiratory viruses</p> <p>< 10% of cases caused by <i>Bordetella pertussis</i>, <i>Chlamydia pneumoniae</i>, or <i>Mycoplasma pneumoniae</i></p>	<p>Antibiotics are generally not indicated. Ensure hydration. May advise rest, antipyretics, analgesics, humidifier.</p>	<p>• None</p>
Bronchiolitis / Non-specific URI Guidelines Reviewed: AAP, AAP, CDC, ISI	<p>When NOT to Treat with an Antibiotic: Sore throat, sneezing, mild cough, fever (generally < 102° F / 38.9° C, < 3 days), rhinorrhea, nasal congestion, self-limited (usually 5-14 days).</p> <p>Antibiotic use should be reserved for moderate symptoms not improving after 10 days or that are worsening after 5-6 days, and severe symptoms.</p> <p>When to Treat with an Antibiotic: Clinicians should make a presumptive diagnosis of acute bacterial sinusitis when a child with acute URI presents with the following:</p> <ol style="list-style-type: none"> Persistent nasal, i.e. nasal discharge (of any quality or daytime cough) or both lasting > 10 days without improvement, OR Worsening course, i.e. worsening or new onset of nasal discharge, daytime cough, or fever after initial improvement, OR Severe onset, i.e. concurrent fever (temperature \geq 39° C [102.2° F]) and purulent nasal discharge for at least 3 consecutive days. 	<p>Many viral pathogens</p> <p><i>Streptococcus pneumoniae</i> <i>Non-typeable Haemophilus influenzae</i> <i>Moraxella catarrhalis</i></p>	<p>Clinical Presentations: Severe onset and worsening course. Antibiotic therapy should be prescribed.</p> <p>Persistent Illness: Antibiotics should be prescribed OR after additional outpatient observation for 3 days to children with persistent illness as previously described.</p> <p>Antibiotic Duration: Continued for 7 days after the patient becomes free of signs and symptoms (minimum 10 days)</p>	<p>Antibiotic Choice:</p> <ul style="list-style-type: none"> Patient without increased risk for antibiotic resistant pneumococcal infection: amoxicillin or amoxicillin-clavulanate 45 mg/kg/day of amoxicillin component Patients with increased risk of antibiotic-resistant pneumococcal infection (in those with severe infection [fever >39°C, treat as separate complication], daycare attendance, <2 years of age, recent hospitalization, antibiotic use within the past month, immunocompromised): amoxicillin-clavulanate high dose (80 mg/kg/day of amoxicillin component) <p>Alternatives:</p> <ul style="list-style-type: none"> For non-antypylactic β-lactam allergy: cefdinir, cefuroxime, or cefepodoxime For severe β-lactam allergy: levofloxacin Combination of clindamycin (or linzolid) and cefixime <p>Failure of Initial Therapy:</p> <ul style="list-style-type: none"> If amoxicillin-clavulanate 45 mg/kg/day used initially, may increase dose to 90 mg/kg/day
Pharyngitis Guidelines Reviewed: AAP, AAP, CDC, DSA, ISAP	<p>When NOT to Treat with an Antibiotic: Most pharyngitis cases are viral in origin. The presence of the following is uncommon with Group A Strept. and point away from using antibiotics: conjunctivitis, cough, rhinorrhea, and diarrhea.</p> <p>Confirm diagnosis with throat culture or rapid antigen detection. If rapid antigen detection is negative, obtain throat culture.</p> <p>When to Treat with an Antibiotic: <i>Streptococcus pyogenes</i> (Group A Strept) Symptoms and signs: sore throat, fever, headache, tonsillopharyngeal erythema, exudates, palatal petechiae, tender enlarged anterior cervical lymph nodes. Diagnostic studies for Group A Strept are not indicated for children <2 years of age (because acute rheumatic fever is rare in children <3 years old) and the incidence of streptococcal pharyngitis and the classic presentation of streptococcal pharyngitis are uncommon in this age group.</p>	<p>Routine respiratory viruses</p> <p><i>Streptococcus pyogenes</i></p>	<p>Group A Strept. Treatment reserved for patients with positive rapid antigen detection or throat culture.</p> <p>Antibiotic Duration: Generally, 10 days (5 days if azithromycin used)</p>	<p>Antibiotic Choice:</p> <ul style="list-style-type: none"> penicillin V, benzathine penicillin G, amoxicillin <p>Alternatives:</p> <ul style="list-style-type: none"> For non-antypylactic β-lactam allergy: cephalexin For severe β-lactam allergy: clindamycin, azithromycin, clindamycin
Tissue Infections Guidelines Reviewed: DSA	<p>Cellulitis is almost always secondary to streptococcal species. Treatment can be directed narrowly.</p> <p>Cellulitis are often secondary to <i>Staphylococcus aureus</i> – including methicillin-resistant <i>Staphylococcus aureus</i> (MRSA). The treatment is cover MRSA. Cultures should be obtained.</p>	<p><i>Staphylococcus pyogenes</i> <i>Staphylococcus aureus</i> (methicillin sensitive and methicillin resistant)</p>	<p>Indicated</p> <p>Infection and drainage.</p> <p>If significant associated cellulitis, add antibiotics</p> <p>Antibiotic Duration: 5-10 days</p>	<p>Antibiotic Choice:</p> <ul style="list-style-type: none"> cephalosporin (ceftriaxone, cefepodoxime, cefprozil, cefuroxime, cephalexin), amoxicillin-clavulanate, trimethoprim-sulfamethoxazole <p>Alternatives: Inhaled; doxycycline or minocycline may be used for children \geq 8 years of age</p>
Urinary Tract Infection Guidelines Reviewed: AAP	<p>When to treat with an antibiotic: Most children with urinary tract infections (UTIs) are febrile. Empiric therapy for UTI may be given when urine demonstrates positive leukocyte esterase test or >5 white blood cells (WBCs) per high-power field (2.5 WBCs per μL) and urine culture obtained through catheterization or suprapubic aspiration. A positive culture consists of >50,000 colony-forming units (CFUs) per mL of a uropathogen.</p>	<p>>50% UTIs caused by <i>Escherichia coli</i>. Other gram-negative organisms may cause infection including <i>Klebsiella</i>, <i>Proteus</i> and <i>Pseudomonas</i>. Gram-positive pathogens include <i>Enterococcus</i> and group B <i>Streptococcus</i>, as well as <i>Staphylococcus</i> in teenage girls.</p>	<p>Indicated</p> <p>Infection and drainage.</p> <p>If significant associated cellulitis, add antibiotics</p> <p>Antibiotic Duration: 7-14 days</p>	<p>Antibiotic Choice:</p> <ul style="list-style-type: none"> cephalosporin (ceftriaxone, cefepodoxime, cefprozil, cefuroxime, cephalexin), amoxicillin-clavulanate, trimethoprim-sulfamethoxazole <p>Alternatives: Follow-up urine culture and adjust antimicrobial therapy according to sensitivities.</p> <ul style="list-style-type: none"> Recommend follow-up with primary care provider to obtain ultrasonogram of kidneys and bladder any time after urinary tract infection is confirmed.

This guideline summary is intended for physicians and healthcare professionals to consider in managing the care of their patients for acute infections. While the summary describes recommended courses of intervention, it is not intended as a substitute for the advice of a physician or other knowledgeable health care professional. These guidelines represent best clinical practice at the time of publication, but practice standards may change as knowledge is gained.

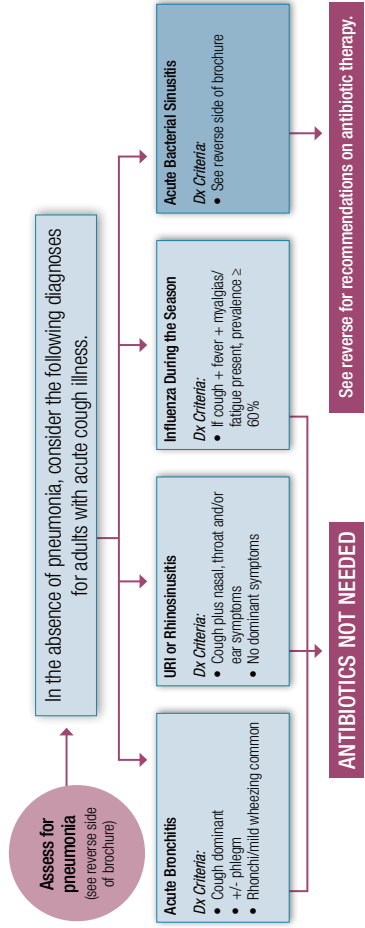


ALLIANCE FOR
 Pediatric Infectious
 Disease

Best Practices in the Management of Patients with Acute Bronchitis/Cough

Evidence-Based Management of Acute Respiratory Tract Infections

Repeated studies and meta-analyses have demonstrated no significant benefit from antibiotics in otherwise healthy persons. Antibiotic administration is associated with allergic reactions, C. difficile infection and future antibiotic resistance in the treated patient and the community.



*Adapted from Gonzales R, et al. A cluster randomized trial of decision support strategies for reducing antibiotic use in acute bronchitis. *Ann Intern Med.* Published online, January 14, 2015. doi:10.1093/ajph.2015.1589

Educate and Advise Patients

Most patients want a diagnosis, not necessarily antibiotics. Explain to the patient that most bronchitis is a viral illness, and coughs are either viral or reactive airway disease. It is important to emphasize that antibiotics may have serious side effects and may create resistance to antibiotics in the patient or their family. This strategy is associated with equal or superior patient satisfaction.

Set appropriate expectations for the duration of symptoms. e.g., cough may last for up to four weeks.

Give symptomatic relief such as combine-based cough suppressants, NSAIDs, multi-symptom OTC medications, and possibly bronchodilators if there is any bronchospasm.

Caution patients regarding symptoms (such as high fevers and shortness of breath) that indicate more severe disease.

Reserve the use of quinolones when treating acute bacterial sinusitis, acute bacterial exacerbation of chronic bronchitis, and uncomplicated urinary tract infections for patients who do not have alternative treatment options.

Recommend Vaccination

- Influenza vaccination for all persons >6 months of age, particularly older and younger patients and those with concomitant significant illnesses.
- Pneumococcal vaccination for those with concomitant significant illnesses and all persons >65 years old without a pneumococcal vaccine history. Refer to the CMA Foundation's Adult Vaccine Schedule for recommended intervals between the pneumococcal conjugate vaccine (PCV13) and pneumococcal polysaccharide vaccine (PPSV23).
- Pertussis immunization for all pregnant women of any age with each pregnancy, between 27 and 36 weeks (but CAN be given at any time). Prompt vaccination is recommended for those who have or will have close contact with an infant <12 months of age (e.g., parents, grandparents, childcare providers, and healthcare practitioners). For all others, vaccinate once during the routine every-10-year tetanus booster.

FOR MORE INFORMATION OR ADDITIONAL MATERIALS, VISIT WWW.AWARE.MD.

Supporting Organizations

Allameda Alliance for Health
Anthem Blue Cross
CalOptima
Care4 at Health Plan
Health Net of California

American Academy of Pediatrics,
California District
California Academy of Family Physicians

California Pharmacists Association
Urgent Care Association of America
Urgent Care College of Physicians

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3. Kobayashi M, et al. Intervals between PCV13 and PPSV23 vaccines: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR*. 2015;64(34):944-7.

Nonspecific URI:

1. Gonzales R, et al. Principles of Appropriate Antibiotic Use for Treatment of Acute Respiratory Tract Infections in Adults: Background, Specific Aims and Methods. *Ann Intern Med*. 2001;134:479-86.
2. Gonzales R, et al. Principles of Appropriate Antibiotic Use for Treatment of Acute Respiratory Tract Infections in Adults: Background. *Ann Intern Med*. 2001;134:480-94.
3. Institute for Clinical Systems Improvement. Health Care Guideline: Diagnosis and Treatment of Respiratory Illness in Children and Adults. Available at: www.isi.org. Revised January 2013. Accessed August 2014.

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2. Chow AW, et al. IDSA Clinical Practice Guidelines for Acute Bacterial Rhinosinusitis in Children and Adults. *Clin Infect Dis*. 2012;54(8):e172-e172.
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Nonspecific Cough Illnesses/Acute Bronchitis/Pertussis:

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2. Gonzales R, et al. Principles of Appropriate Antibiotic Use for Treatment of Uncomplicated Acute Bronchitis: Background. *Ann Intern Med*. 2001;134:521-28.
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1. Stevens DL, et al. Practice Guidelines for the Diagnosis and Management of Skin and Soft Tissue Infections: 2014 Update by the Infectious Diseases Society of America. *Clin Infect Dis*. 2014;59(2):e10-62.
2. Shierz MA. Cellulitis. *N Engl J Med*. 2004;350:904-912.
3. Liu, et al. Critical Practice guidelines by the Infectious Diseases Society of America for the Treatment of Community-Acquired Staphylococcus aureus infections in Adults and Children. *Clin Infect Dis*. 2011;52:1-36.

Guidelines Reviewed:

- American Academy of Allergy, Asthma & Immunology (AAAAI)
- American Academy of Family Physicians (AAFP)
- American Academy of Otolaryngology—Head and Neck Surgery
- American College of Physicians (ACP)
- Centers for Disease Control and Prevention (CDC)
- Infectious Diseases Society of America (IDSA)
- Institute for Clinical Systems Improvement (ICS)
- Infectious Diseases Society of America / American Thoracic Society (IDSA/ATS)

Acute Infection Guideline Summary

2018

ADULT



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Illness	Indications for Antibiotic Treatment in Adults	Pathogen	Antimicrobial Therapy	Antibiotic	Guidelines Reviewed
Outpatient Community Acquired Pneumonia	<p>When NOT to Treat with an Antibiotic as an Outpatient: Consider inpatient admission if PSI score >90, CURB-65 >2, unable to tolerate oral, unstable social situation, or if clinical judgment so indicates.</p> <p>When to Treat with an Antibiotic as an Outpatient: Perform chest x-ray (CXR) to confirm the diagnosis of pneumonia. Evaluate for coinfection management. Consider pre-existing conditions, calculate Pneumonia Severity Index (PSI) <90 (for outpatient management) or CURB-65 (0 or 1 for outpatient management). Visit www.idscociety.org for more information. Sputum gram stain and culture are recommended if acute atypical disease, severe obstructive/structural lung disease, or pleural effusion. Pneumococcal vaccination should be done following current ACP recommendations which have been recently updated. Specific use of PCV13 (conjugated pneumococcal vaccine) is now recommended in some situations for adults in conjunction with regular pneumococcal vaccine (PPSV23).</p>	<p><i>Streptococcus pneumoniae</i> <i>Mycoplasma pneumoniae</i> <i>Haemophilus influenzae</i> <i>Chlamydia pneumoniae</i></p>	<p>Empiric Therapy: Healthy with no recent antibiotic use risk factors: macrolide* consider doxycycline Presence of co-morbidity or antibiotic use within 3 months Respiratory quinolone β-lactam plus a macrolide (or doxycycline as an alternative to the macrolide). Antibiotic Duration: • Quinolones – 5 days • All other regimens – 7 days</p>	<p>Antibiotic Choice: • Macrolide (azithromycin or clarithromycin) • Doxycycline (alternative to macrolide) With Comorbidities: β-Lactam Alternatives: (to be given with a macrolide* or doxycycline) • High dose amoxicillin or amoxicillin-clavulanate • Cephalosporins (cefepime/drosha, ceftriaxone) Other Alternatives: • Respiratory quinolone (moxifloxacin, levofloxacin 750mg QD)* Not indicated.</p>	<p>IDSA, A/S, ICSI</p>
Non-specific URI	<p>When NOT to Treat with an Antibiotic: Antibiotics not indicated; however, non-specific URI is a major cause of acute respiratory illnesses presenting to primary care practitioners. Patients often present expecting some treatment. Attempt to discourage antibiotic use and explain appropriate non-pharmacologic treatment that are not improving after 7-10 days, or that are worsening after 5-7 days, and severe symptoms.</p>	<p>Viral</p>	<p>Not indicated</p>	<p>Antibiotic Choice: • Amoxicillin-clavulanate (875 mg/125 mg po bid) Alternatives: • Amoxicillin-clavulanate (high dose 2000 mg/125 mg po bid), doxycycline, respiratory quinolone (levofloxacin, moxifloxacin) For β-Lactam Allergy: • Doxycycline, respiratory quinolone (levofloxacin, moxifloxacin)*</p>	<p>AAAP, AAFP, AAO, ACP, CDC, IDSA</p>
Acute Bacterial Sinusitis	<p>When NOT to Treat with an Antibiotic: Nearly all cases of acute sinusitis resolve without antibiotics. Antibiotic use should be reserved for moderate symptoms that are not improving after 10 days.</p> <p>When to Treat with an Antibiotic: Diagnosis of acute bacterial sinusitis may be made in adults with symptoms of acute rhinosinusitis (nasal obstruction or purulent discharge, facial fullness or pain, fever, or anosmia) who have any of the three following clinical presentations: Symptoms lasting > 10 days without clinical improvement. Severe illness with high fever (>39°C [102.2° F]) and purulent nasal discharge or facial pain for >3 consecutive days at the beginning of illness. Worsening symptoms or signs (new onset fever, headache or increase in nasal discharge) following typical URI that lasted 5-6 days and were initially improving.</p>	<p><i>Streptococcus pneumoniae</i> Nongroupable <i>Haemophilus influenzae</i></p>	<p>Not indicated Antibiotic Duration: 5 to 7 days Failure to respond after 72 hours of antibiotics: Re-evaluate patient and switch to alternate antibiotic.</p>	<p>Antibiotic Choice: • Penicillin V, benzathine penicillin G, amoxicillin Alternatives: • Oral cephalosporins For β-Lactam Allergy: • Azithromycin*, clindamycin, clarithromycin* Antibiotic Choice: • Not indicated</p>	<p>ACP, AAFP, CDC, IDSA, ICSI</p>
Pharyngitis	<p>When NOT to Treat with an Antibiotic: Most pharyngitis cases are viral in origin. The presence of the following is uncommon with Group A Streptococcus (GAS): Symptoms of sore throat, fever, headache, Physical findings include: Fever, tonsillopharyngeal erythema and exudates, palatal petechiae, tender and enlarged anterior cervical lymph nodes, and absence of cough. Confirm diagnosis with throat culture or rapid antigen detection before using antibiotics.</p>	<p><i>Streptococcus pyogenes</i></p>	<p>Group A Streptococcus: Treatment reserved for patients with positive rapid antigen detection or throat culture. Antibiotic Duration: 10 days</p>	<p>Antibiotic Choice: • Penicillin V, benzathine penicillin G, amoxicillin Alternatives: • Oral cephalosporins For β-Lactam Allergy: • Azithromycin*, clindamycin, clarithromycin* Antibiotic Choice: • Not indicated</p>	<p>ACP, AAFP, CDC, IDSA, ICSI</p>
Non-specific Cough Illness / Acute Bronchitis / COPD	<p>When NOT to Treat with an Antibiotic: 90% of cases are nonbacterial. Literature fails to support use of antibiotics in adults without history of chronic bronchitis or other co-morbid conditions.</p> <p>When to Treat with an Antibiotic: Antibiotics not indicated in patients with uncomplicated acute bacterial bronchitis. Sodium characteristics not helpful in determining need for antibiotics. Treatment is reserved for patients with acute bacterial exacerbation of chronic bronchitis and COPD, usually smokers. In patients with severe symptoms, rule out other more severe conditions, e.g., pneumonia. Testing is recommended either prior to or in conjunction with treatment for pertussis. Vaccination per ACP recommendations is highly encouraged to prevent outbreaks. All pregnant women should be vaccinated during every pregnancy.</p>	<p>Many viral pathogens <i>Chlamydia pneumoniae</i> <i>Mycoplasma pneumoniae</i> <i>Moraxella catarrhalis</i></p>	<p>Uncomplicated: Not indicated</p>	<p>Antibiotic Choice: • Amoxicillin, trimethoprim-sulfamethoxazole (TMP/SMX), doxycycline Alternatives: • <i>Chlamydia pneumoniae</i>, <i>Mycoplasma pneumoniae</i> - macrolide (azithromycin or clarithromycin) or doxycycline Antibiotic Choice: • Azithromycin* Alternatives: • TMP/SMX</p>	<p>AAFP, AC, CDC</p>
Pertussis	<p>Testing for pertussis is recommended particularly during outbreaks and according to public health recommendations, particularly those at high risk – teachers, day care and healthcare workers. Persons with exposure to infants (parents, child care workers or family members) should be vaccinated and tested if they have symptoms. Vaccination per ACP recommendations is highly encouraged to prevent outbreaks. All pregnant women should be vaccinated during every pregnancy.</p>	<p><i>Bordetella pertussis</i></p>	<p>Treatment is required for all cases and close contacts or as directed by health officer</p>	<p>Antibiotic Choice: • Penicillin, cephalosporin, clindamycin, clindamycin Alternatives: • Azithromycin* Antibiotic Choice: • Not indicated</p>	<p>CDC</p>
Skin and Soft Tissue Infections	<p>Cellulitis is almost always secondary to streptococcal species. Treatment can be directed narrowly. Abscesses are often secondary to Staphylococcus aureus – including methicillin-resistant Staphylococcus aureus (MRSA). The treatment is primarily drainage and this is required for finger abscesses. If surrounding cellulitis, treatment should be broadened to cover MRSA. Cultures should be obtained.</p>	<p><i>Streptococcus pyogenes</i> <i>Staphylococcus aureus</i> (methicillin sensitive and methicillin resistant)</p>	<p>Indicated Incision and drainage. If significant associated cellulitis, add antibiotics</p>	<p>Antibiotic Choice: • Cellulitis: Penicillin, cephalosporin, clindamycin Abscesses (if moderate cellulitis/erysipelas or fever): doxycycline, TMP/SMX Antibiotic Choice: • Ceftriaxone, clindamycin, ampicillin Alternatives: • Clindamycin, ceftriaxone, ampicillin For Allergy: • Glycyls: amoxicillin-clavulanate, ceftriaxone, cefepime, piperacillin, fluoroquinolone • Penicillins: Oral β-lactam (less effective) plus intral IV ceftriaxone 1g or IV 24-hour dose ampicillin</p>	<p>IDSA</p>
Urinary Tract Infection	<p>Empiric therapy for UTI may be given when urinalysis demonstrates pyuria (positive leukocyte esterase test) or > 10 white blood cells (WBCs) per high-power field (25 WBCs per µL) and urine culture obtained through catheterization or suprapubic aspiration. A positive culture consists of >100,000 colony-forming units (CFUs) per mL of a uropathogen. In patients suspected of pyelonephritis, always confirm diagnosis with urine culture and susceptibility test before using antibiotics.</p>	<p>>50% UTIs caused by <i>Escherichia coli</i>. Other gram-negative organisms may cause infection including <i>Klebsiella</i>, <i>Proteus</i> and <i>Pseudomonas</i>. Gram-positive pathogens include <i>Enterococcus</i> and group B <i>Streptococcus</i>, as well as <i>Staphylococcus</i>.</p>	<p>Antibiotic Duration: • Cystitis: 3-5 days • Pyelonephritis: 5-14 days</p>	<p>Antibiotic Choice: • Glycyls: Nitrofurantoin (100mg bid), trimethoprim-sulfamethoxazole (TMP/SMX) • Pyelonephritis: fluoroquinolone*, ciprofloxacin, levofloxacin, trimethoprim-sulfamethoxazole (TMP/SMX) Alternatives: • Pyelonephritis: ceftriaxone, ampicillin For Allergy: • Glycyls: amoxicillin-clavulanate, ceftriaxone, cefepime, piperacillin, fluoroquinolone • Penicillins: Oral β-lactam (less effective) plus intral IV ceftriaxone 1g or IV 24-hour dose ampicillin</p>	<p>IDSA</p>

*Macrolides and quinolones cause QT prolongation and have an increased risk of cardiac death. Reserve the use of quinolones when treating acute bacterial sinusitis, acute bacterial exacerbation of chronic bronchitis, and uncomplicated urinary tract infections for patients who do not have alternative treatment options. This guideline summary is intended for physicians and healthcare professionals to consider in managing the care of their patients for acute infections. While the summary describes recommended courses of intervention it is not intended as a substitute for the advice of a physician or other knowledgeable health care professional. These guidelines represent best clinical practice at the time of publication, but practice standards may change as knowledge is gained.



Tips for Talking to Patients about Viral Respiratory Infection

Improving Patient Satisfaction when Antibiotics Are Not Indicated

1. Validate the patient's symptoms and illness while providing reassurance.

Example:

"You have viral bronchitis, which is an inflammation in your lungs caused by a virus. That is what's causing your cough and fatigue. This virus can make you feel pretty awful, but it isn't dangerous."

2. Provide specific recommendations to treat the symptoms.

Example:

"With a virus, the goal is to treat your symptoms and make sure your immune system can fight the virus."

3. Provide a written "prescription" for symptomatic relief so patients feel satisfied and are better able to follow treatment instructions.

Example:

1. Oxymetolazine nasal spray (e.g., Afrin) 12 hour (to decongest swollen nasal passages). Use twice a day for 3 days. After 3 days, switch to saline nasal spray (for moisture).
2. Ibuprofen 400 mg (e.g., Advil, Motrin). Take 3 times a day for fever and aches. Alternate with acetaminophen (Tylenol) if needed.

4. Explain what the patient can expect over the next few days and what to do if symptoms worsen.

Example:

"Your cough may last from several more days to several weeks, and it may take a while for you to feel better. I want you to call me if you're still coughing after three weeks, or if you begin coughing blood."

Provide written information about when the patient should call the doctor.

5. If patients push for antibiotics, provide facts about viral infections and antibiotics, including adverse effects.

Example:

"Your illness is caused by a virus, and antibiotics do not cure viruses. Our goal is to help your immune system fight the virus. Taking antibiotics can actually be harmful by destroying the good bacteria that protect your body. And when you use antibiotics when you don't need them, the next infection you get is more likely to be resistant to the medicine, so it won't work when you do need it."

This campaign is based on the guiding principles of an expert panel organized by the Centers for Disease Control and Prevention with representatives from the American Academy of Family Physicians, the American College of Physicians, and the Infectious Disease Society of America (Annals of Internal Medicine 2001;134:479-529). This information is not a substitute for a credentialed provider's experience and education. When treating any patient, please use your own independent medical judgment.

